

70647 U.S. PTO



09/15/97

Box: New Patent Application
THE COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

PATENT
Attorney Docket No. 5291/54391
Express Mail No. GB371891146US

Sir:

Transmitted herewith for filing is the patent application of
Inventor(s): Paul T. DeCraene

For: **NETWORK INTERFACE UNIT SHELF ASSEMBLY WITH MULTI-POSITIONABLE CUSTOMER
INTERFACE MODULE**

Enclosed are:

- (x) 20 pages of specification, including 19 claims and an abstract.
- (x) an executed oath or declaration, with power of attorney.
- (x) 4 sheet(s) of drawing(s).
- (x) Assignment(s) of the invention to Troncom Corporation.
- (x) A check in the amount of \$ 40.00 to cover the fee for recording the assignment(s) is enclosed.
- (x) An information disclosure statement, PTO 1449 and references attached.
- (x) A return postcard evidencing receipt of the enclosed.
- () Associate power of attorney.
- (x) Certificate of Express Mail No. GB371891146US

Fee Calculation For Claims As Filed

a) Basic Fee						\$ 770.00
b) Independent Claims	<u>5</u>	- 3 = <u>2</u>	x	\$80.00 =		\$ <u>160.00</u>
c) Total Claims	<u>19</u>	- 20 = <u>0</u>	x	\$22.00 =		\$ _____
d) Fee for Multiple Claims				\$260.00 =		\$ _____

Total Filing Fee \$ 930.00

- (x) 1 Statement(s) of Status as Small Entity,
reducing Filing Fee by half to \$ 465.00
- (x) A check in the amount of \$ 505.00 to cover the filing and assignment recordation fee is enclosed.

The Commissioner is hereby authorized to charge any additional fees which may be required, including if necessary, the filing if the above-referenced check is in the wrong amount, unsigned, postdated, or otherwise improper or informal or missing, or credit any overpayment to Deposit Account No. 16-0657.

116 South Michigan Avenue
14th Floor
Chicago, IL 60603
(312) 201-8220
(18T66)

PATULA & ASSOCIATES

By: Charles T. Riggs Jr.
Charles T. Riggs Jr.
Registration No. 37,430

PATENT

Attorney Docket No. 5291/54391

Express Mail No. GB371891146US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

UTILITY PATENT APPLICATION

Title:

**NETWORK INTERFACE UNIT SHELF ASSEMBLY WITH
MULTI-POSITIONABLE CUSTOMER INTERFACE MODULE**

Inventor:

Paul T. DeCraene

Patent Attorney:

Timothy T. Patula, Esq.

Patent Attorney Reg. No. 30,791

Charles T. Riggs Jr., Esq.

Patent Attorney Reg. No. 37,430

Matthew E. Leno, Esq.

Patent Attorney Reg. No. 41,149

Patula & Associates

116 South Michigan Avenue

14th Floor

Chicago, Illinois 60603

5 Inventor: Paul T. DeCraene

10 **NETWORK INTERFACE UNIT SHELF ASSEMBLY WITH
MULTI-POSITIONABLE CUSTOMER INTERFACE MODULE**

15 The present invention relates to network interface unit shelf assemblies and, in particular, a shelf assembly that allows for multi-positionable connection of the customer interface module, specifically a shelf assembly having at least two customer interface module connectors to allow flexibility in mounting the shelf assembly in the presence of an obstruction such as in a corner, etc.

20 **Background of the Invention**

25 Network interface units are telecommunication transmission equipment that a network service provider, such as a telephone operating company or long distance carrier, places between their lines and the customer's lines. The network interface units provide a demarcation point for legal tariff issues.

30 Network interface units are typically stored on a shelf assembly which also provides for the Local Exchange Carrier (LEC) facility connections and the Customer Premise Equipment (CPE) connections which are made via a customer interface module attached to the shelving assembly. Such a shelving assembly is typically mounted in some location at the customer's business. However, many locations where the shelving assembly is mounted can be difficult

to access from one or more sides due to space restrictions or obstructions on the mounting surface. This presents a problem in that mounting can be very difficult or additional space may be required to provide access to the shelf assembly and the connections thereto, as well as for the wiring of the connectors. Accordingly, there is a need to provide a compact shelving assembly which is flexible in mounting options.

Prior art network interface unit shelf assemblies provide a single, fixed customer interface module along the top or bottom of the shelf. While this helps for mounting the shelf in a corner, additional wall space is required at the top and bottom for access to the connectors and wiring. Prior art network interface unit shelf assemblies that provide a single, fixed customer interface unit along one side prevents the shelf assembly from being mounted in the corner. Additionally, such known prior art network interface unit shelf assemblies typically include panels which contain a door or panel which swings open to provide access to the network interface units. Such doors or panels require additional space for mounting the shelf assembly to allow for proper access to the network interface units and the shelf assembly.

The present invention, however, solves the problems of mounting a network interface unit shelf assembly in a location where prior art shelf assemblies cannot be mounted. The present invention provides for a multi-positionable customer interface module, as well as a cover which can be removed by lifting straight out.

Brief Summary of the Invention

5 The present invention comprises a shelf assembly for network interface units. The shelf assembly includes on each side thereof a connector for receiving a customer interface module. In this manner, the customer interface module can be connected to either connector on either side of the shelf assembly. As such, the shelf assembly provides for flexibility in mounting the shelf assembly in locations where prior art shelf assemblies could not previously be mounted, such as in the corner of a room. Additionally, the main
10 cover of the shelf assembly can be attached and removed by lifting straight outward. The customer interface modules of the present invention provide for CPE connections to be made toward the side of the shelving assembly as opposed to towards the mounting wall as is the case with prior art shelf assemblies. The present invention can be used by any communication network service provider such as
15 telephone operating companies, long distance carriers, internet service providers, alternate local exchange carriers, competitive access providers, etc.

Accordingly, it is the principle object of the present
20 invention to provide a network interface unit shelf assembly having improved mounting ability.

It is a further object of the present invention to provide a network interface unit shelf assembly having a selectively detachable and multi-positionable customer interface module.

25 It is also an object of the invention to provide a cover for the shelving assembly which can be removed by lifting straight out.

Numerous other advantages and features of the invention will become readily apparent from the detailed description of the preferred embodiment of the invention, from the claims and from the accompanying drawings in which like numerals are employed to designate like parts throughout the same.

Brief Description of the Drawings

A fuller understanding of the foregoing may be had by reference to the accompanying drawings wherein:

FIGURE 1A is a perspective view of the present invention mounted in a corner and having the customer interface module on the left side of the shelf assembly.

FIGURE 1B is a perspective view of the present invention mounted in an opposite corner and having the customer interface module mounted on the right side of the shelf assembly.

FIGURE 2A is an exploded perspective view of the present invention illustrating the customer interface module positioned for attachment on the right side of the shelf assembly.

FIGURE 2B is a partially broken away exploded perspective view of the present invention illustrating the customer interface module positioned for attachment on the left side of the shelf assembly.

FIGURE 2C is a perspective view of the customer interface unit of the present invention.

FIGURE 3 is a front view of the shelf assembly and customer interface module of the present invention.

FIGURE 4A is a partially broken away top perspective view of the top portion of the shelf assembly having the wiring exit on the right side.

FIGURE 4B is a partially broken away top perspective view of the top portion of the shelf assembly having the wiring exit on the left side.

FIGURE 5A is a side view of the present invention with the customer interface module mounted on the right side thereof and having the modular phone jacks in use.

FIGURE 5B is a side view of the present invention with the customer interface module mounted on the right side thereof and having the modular connectors in use.

FIGURE 5C is a side view of the present invention with the customer interface module mounted on the right side thereof and having wire wrap posts in use.

FIGURE 5D illustrates the side view of the present invention with the customer interface module mounted on the left side thereof and having the modular connectors in use.

Detailed Description of the Preferred Embodiments of the Present Invention

While the invention is susceptible of embodiment in many different forms, there is shown in the drawings and will be described herein in detail preferred and alternate embodiments of the present invention. It should be understood, however, that the present disclosure is to be considered an exemplification of the principles of the invention and is not intended to limit the spirit

and scope of the invention and/or claims of the embodiment illustrated.

Figure 1 illustrates generally the present invention in use as mounted on a wall. Specifically, Figure 1A illustrates present invention 10 being mounted proximate a right hand corner of two walls. The selectively detachable and positionable customer interface module 70 can be seen mounted on the left hand side of the invention 10. Cover 90 is shown in use on the shelf assembly of the present invention 10. Alternatively, Figure 1B illustrates present invention 10 mounted proximate a left hand corner of two walls. The selectively detachable and positionable customer interface module 70 is shown attached on the right hand side of present invention 10. Cover 90 is shown in place on the shelf assembly of the present invention 10. Accordingly, the present invention 10 allows flexibility in the location of mounting which is extremely advantageous due to space limitations in the locations for mounting of a network interface unit shelf assembly.

Referring now to Figure 2, the present invention 10 is illustrated in an exploded perspective view. The present invention 10 incorporates four main components: back plate 20, shelf assembly 40, customer interface module 70 and cover 90.

Back plate 20 is attached to the mounting wall and is used to support shelf assembly 40 thereto. Back plate 20 includes mounting holes 22, mounting screws 24, which secure back plate 20 to the wall. Back plate 20 further includes flanges 26 extending outward away from the wall and retaining tabs 30 extending outward away

from the wall. Flanges 26 include locking slots 28 for receiving locking tabs 106 of cover 90. Retaining tabs 30 receive mounting tabs 62 of shelf assembly 40 for securely mounting the shelf assembly to the back plate 20.

5 Shelf assembly 40 is comprised of a printed circuit board 42 having first side flange 44 mounted thereto in a perpendicular fashion. Similarly, shelf assembly 44 includes second side flange 46, top flange 48 and bottom flange 50 mounted thereto in a perpendicular fashion. Printed circuit board 42, first side flange 10 44, second side flange 46, top flange 48 and bottom flange 50 are configured to define a housing area 52 for receiving a plurality of network interface units. It should be understood that the present invention can be utilized in connection with any type of network interface units, such as digital, analog and fiber network 15 interface units.

20 Mounted on printed circuit board 42 are a plurality of network interface unit connectors 54 for connecting network interface units. Aligned with the network interface unit connectors 54 are guide slots 55 provided on bottom flange 50 of shelf assembly 40, as well as on top flange 48 (see Figure 3). Guide slots 55 align the network interface units with the connectors 54. Mounted on the printed circuit board 42 above top flange 48 are the network modular connector for facility transmit (XMT) 56, as well as wire wrapped posts for facility transmit (XMT) 58. Similarly, mounted 25 on printed circuit board 42 are network modular connector for facility receive (RCV) 57 and wire wrapped posts for facility

receive (RCV) 59 (see Figure 3). Additionally, mounted to printed circuit board 42 are two customer interface module connectors 60 and 61 just outside of first side flange 44 and second side flange 46, respectively.

5 First side flange 44 and second side flange 46 each include two mounting tabs 62 for cooperating with the retaining tab 30 on back plate 20. To secure shelf assembly 40 to back plate 20, shelf assembly 40 includes a self-contained securing screw 64 which cooperatively engages a standoff 65 on back plate 20 when screw 64
10 is tightened to prevent the shelf assembly 40 from disengaging from back plate 20, thus providing a secure mounting of shelf assembly 40 to back plate 20.

Shelf assembly 40 further includes means for connecting a power source. Accordingly, an internal power supply can be inserted into internal power supply slot 66 to engage internal power supply connector 67 on printed circuit board 42 (see Figure 3). Below bottom flange 50 of shelf assembly 40, an external power connection 68 is provided on circuit board 42 (see Figure 3).
15

Customer interface module 70 is shown in position to be connected with customer interface module connector 60 on the right side of shelf assembly 40 or along first side flange 44. Similarly, in Figure 2B, customer interface module 70 is shown positioned to be attached to the customer interface module connector 61 at the left side of shelf assembly 40 or along second side flange 46. To switch from one side to the other, the customer
20 interface module 70 simply need be rotated 180° such that the
25

complimentary connector 78 (see Figure 2C) on the customer interface module 70 can be fitted with the customer interface module connectors 60 and 61 of the shelf assembly. Connectors 60 and 61 are preferably female connectors which receive the complimentary male connector 78, however, various types of suitable connectors could be utilized. Customer interface module 70 is shown including phone jacks 72, as well as amphenol type connectors 74. Preferably, as is shown, customer interface module 70 includes at least one mounting flange having a screw which is received in a threaded hole on first side flange 44 or second side flange 46 to provide a secure mount thereto.

Cover 90 is shown in position to be mounted over the shelf assembly 40. Cover 90 includes top 92, bottom 94, front 96 having window 98 therein, and first and second sides 100. One of the first and second sides 100 includes a main cutout or opening 102, as well as network wiring cutouts or openings 104. Shown in phantom extending from top 92 of cover 90 are locking tabs 106 which are received in locking cover slots 28. It should be understood that bottom 94 further includes locking tabs 106 for engagement with back plate 20.

Two self-contained securing screws 108 are provided on at least one side 100. Screws 108 cooperatively engage standoffs 109 on first and second side flanges 44 and 46 to securely fasten cover 90 to shelf assembly 40. Additionally, a main cover lock 110 can be provided to prevent unwanted access to housing area 52 and printed circuit board 42 and any connections thereon. Lock 110 can

take any suitable form, such as a locking cam which cooperatively engages tabs 112 on first and second side flanges 44 and 46.

Cover 90 is illustrated as having opening 102 on the right for mounting when the customer interface module 70 is mounted on the right side of assembly 40. When the customer interface module 70 is to be mounted on the left side of assembly 40, the cover 90 simply need be rotated 180° such that opening 102 is positioned to the left of assembly 40. In this position, screws 108 cooperate with standoffs 109 on second side flange 46 as opposed to standoffs 109 on first side flange 44 when positioned to the right. Similarly, lock 110 cooperates with the lower tab 112 on second side flange 46 as opposed to the upper tab 112 on first side flange 44 when positioned to the right. It should be understood that cover 90 could include openings on both sides so that it need not be rotated, however, this would expose the customer interface module connector which is not in use, unless a separate panel or cover is provided for the opening.

Referring now to Figure 3 in more detail, shelf assembly 40 can be seen from a front view and including printed circuit 42 and first side flange 44, second side flange 46, top flange 48 and bottom flange 50 mounted thereto in a perpendicular fashion to define housing area 52. A plurality of network interface unit connectors 54 are mounted to circuit board 42 inside housing area 52. Guide slots 55 are provided to align the network interface units with the connectors 54. Mounted above top flange 48 on printed circuit board 42 are the network modular connector for

facility XMP 56 and the wire wrap posts for facility XMT 58. Similarly, mounted below bottom flange 50 on printed circuit board 42 are the network modular connector for facility RCV 57 and the wire wrap post for facility RCV 59. Customer interface module 70 is shown mounted at the right side of shelf assembly 40 or along first side flange 44 and being connected to the customer interface module connector 60 not shown. As can be seen on the opposite or left side, along the second side flange 46 is the customer interface module connector 61 which is not in use. Mounting tabs 62 can be seen along second side flange 46. However, the mounting tabs 62 remains hidden behind customer interface module 70 on the opposite side.

Shelf assembly 40 further includes internal power supply option slot 66, as well as internal power supply option connector 67 mounted on printed circuit board 42. External power connections 68 are also mounted on printed circuit board 42 below the bottom flange 50.

Figures 4A and 4B illustrate a broken away perspective view of the top portion of shelf assembly 40. As can be seen, first side flange 44 and second side flange 46 include cutout portions or cable exits 45 and 47, respectively. These cutouts or exits allow cables from the connections of the network modular connector 56 or wire wrapped post 58 to exit from cover 90.

Figure 4A shows network modular connector 56 in use wherein the cable from the connection exits cable exit cutout 45. Similarly, Figure 4B illustrates the cable from the connection of

the network modular connector 56 exiting the opposite side of Figure 4 or out cable exit 47. Mounted to top flange 48 are a plurality of cable ties 69 which securely hold the cable from the connector 56 or 58. It should be understood that cable connections for connectors 57 and 59 exit below bottom flange 50 in the same manner.

Figures 5A through 5C illustrate side views of the present invention in use on a wall wherein the customer interface module 70 is mounted on the right side of shelf assembly 40 along first side flange 44. Figure 5D illustrates the customer interface module 70 mounted on the left side of shelf assembly 40 or along the second side flange 46.

Figure 5A illustrates the phone jacks 72 in use. Figure 5B illustrates the amphenol type connectors 74 in use. Figure 5C illustrates an alternate embodiment of the customer interface module wherein the phone jacks 72 have been replaced by wire wrapped posts 76 which are in use. Figure 5D illustrates the amphenol type connectors 74 in use on the customer interface module 70.

As can be seen by comparing Figure 5B and Figure 5D, customer interface module 70 has been rotated 180° to allow proper connection with connectors 60 and 61, respectively. Customer interface module 70 is further preferably provided with cable ties 85 for securing connection wires thereto. Cover 90 is shown mounted over shelf assembly 40 in Figures 5A through 5D. Main opening 102 of cover 90 allows access to the connections on the

customer interface module 70. Network wiring opening 104 can be seen in cover 90 to allow cable exits of the network modular connectors 56 or 57 and the wire wrapped posts 58 and 59 which reside inside of cover 90, as can be seen in Figure 1A and 1B.

5 Each one of the connectors 72 and 74 on the customer interface unit 70 is preferably numbered and corresponds and is wired to a specific network interface unit connector 54. Accordingly, it should be understood that customer interface module connectors 60 and 61 are inversely wired such that when the customer interface
10 unit 70 is rotated 180° for connection to either connector 60 or 61, each one of the numbered connectors 72 and 74 always corresponds to the same network interface unit connector 54.

15 It is to be understood that the embodiments herein described are merely illustrative of the principles of the present invention. Various modifications may be made by those skilled in the art without departing from the spirit or scope from the claims which follow. For example, the shelf assembly could be configured for mounting essentially 90° from that illustrated, or with the customer interface module female connectors provided at the top and
20 bottom of the shelf assembly. Such configurations would allow for installation at a floor or a ceiling, etc. Further, it is foreseen that two or more customer interface module female connectors could be provided at the sides, top, bottom, or all four sides of the shelf assembly to allow for maximum flexibility in installation.
25 It is foreseen that all connectors on the assembly 40 could be suitably arranged in any location on the assembly, such as all

What is claimed is:

1. A wall rack assembly comprising:

a shelf assembly for selectively receiving a plurality of
5 network interface units;

at least two customer interface module connectors
operatively connected to said shelf assembly; and

a customer interface module selectively connectable to
either one of said at least two customer interface module
10 connectors.

2. The assembly of Claim 1, further comprising a cover for
said shelf assembly.

3. The assembly of Claim 2, wherein said cover includes side
15 openings for allowing placement of said cover around said customer
interface module.

4. An improved shelf assembly for telecommunications network
20 interface units, said shelf assembly including a printed circuit
board for interconnecting customer lines with network service
provider lines through said network interface units, said customer
lines being connected to a customer interface module which is
operatively connected to said printed circuit board, said network
25 service provider lines being connected to said printed circuit
board via connectors provided on said printed circuit board, said
improvement comprising:

at least two customer interface module connectors provided on said printed circuit board, said customer interface module being selectively connected to either of said at least two customer interface modules to afford flexibility in mounting said shelf assembly.

5. The improved shelf assembly of Claim 4, further comprising a cover for said shelf assembly, said cover having at least two customer interface module receiving openings to allow said cover to be positioned over said shelf assembly when said customer interface unit is connected to either of said at least two customer interface module connectors.

6. A shelf assembly for receiving a plurality of telecommunications network interface units and for interconnecting customer lines with network service provider lines, said shelf assembly comprising:

a printed circuit board;

a plurality of network interface unit connectors on said printed circuit board for receiving said network interface units; and

at least two customer interface module connectors for selectively and independently receiving a customer interface module.

7. The shelf assembly of Claim 6, wherein said shelf assembly further includes a top flange, a bottom flange, a first side flange and a second side flange, said top, bottom, first and

second side flanges being positioned generally perpendicular to said printed circuit board and forming a housing area for said network interface units.

5 8. The shelf assembly of Claim 7, wherein said at least two customer interface module connectors include a first customer interface module connector positioned along said first side flange and a second customer interface module connector positioned along said second side flange.

10 9. The shelf assembly of Claim 8, wherein said customer interface module includes at least one customer line connector, said customer lines being connected to said at least one customer line connector in a direction parallel to said printed circuit board.

15 10. The shelf assembly of Claim 7, wherein said printed circuit board includes at least one network service provider line connector, said network service provider lines being connected to said at least one network service provider line connector in a direction perpendicular to said printed circuit board.

20 11. The shelf assembly of Claim 10, wherein said at least one network service provider line connector is located above said top flange.

25 12. The shelf assembly of Claim 7, further comprising a cover for selectively enclosing said printed circuit board, said top

flange, said bottom flange, said first side flange and said second side flange.

13. The shelf assembly of Claim 12, wherein said cover includes at least two cut out portions to allow clearance of said customer interface module.

14. The shelf assembly of Claim 12, wherein said shelf assembly is removably mounted to a back mounting plate.

15. The shelf assembly of Claim 14, wherein said back mounting plate includes cover locking slots, and said cover includes locking tabs which selectively engage said cover locking slots to secure said cover over said shelf assembly.

16. The shelf assembly of Claim 11, wherein said first side flange and said second side flange extend beyond said top flange and said bottom flange, said shelf assembly further comprising a cover, said cover and said top and bottom flanges including openings for allowing said network service provider lines to pass therethrough.

17. A wall rack assembly for selectively receiving and housing a plurality of network interface units and for interconnecting customer lines with network service provider lines; said assembly providing flexibility in mounting the assembly in the presence of an obstruction and comprising:

a shelf assembly having a first customer interface module connector and a second customer interface module connector; and

a customer interface module selectively and removably connectable to said first customer interface module connector and said second customer interface module, said customer interface module being connected to said first customer interface module connector when said second customer interface module connector is proximate said obstruction and said customer interface module being connected to said second customer interface module connector when said first customer interface module connector is proximate said obstruction.

18. The wall rack assembly of Claim 17, further including a cover for said shelf assembly, said cover selectively positionable over and removable outwardly away from said shelf assembly so as to be unhindered by said obstruction.

19. A method of mounting a wall telecommunications rack assembly in a difficult to access location, said method comprising the steps of:

providing a shelf assembly having at least a first customer interface module connector and a second customer interface module connector;

providing a customer interface module selectively and removably attachable to said shelf assembly; and

selectively attaching said customer interface unit to one of said first customer interface module connector and said second customer interface module connector.

Abstract of the Disclosure

A telecommunication equipment device in the form of a wall rack assembly used to accommodate a plurality of network interface units and used to interconnect a plurality of service lines of the network service provider with the customer's lines to serve as a demarcation point for legal tariff issues. The wall assembly includes a shelf assembly having at least two customer interface module connectors, each capable of receiving a detachable customer interface module, thus allowing flexibility in mounting in difficult to access areas, such as a corner of a room, closet, etc. In furtherance of the space saving and flexible mounting advantages, the wall assembly further includes a cover which can be installed and removed by lifting straight out away from the shelf assembly.

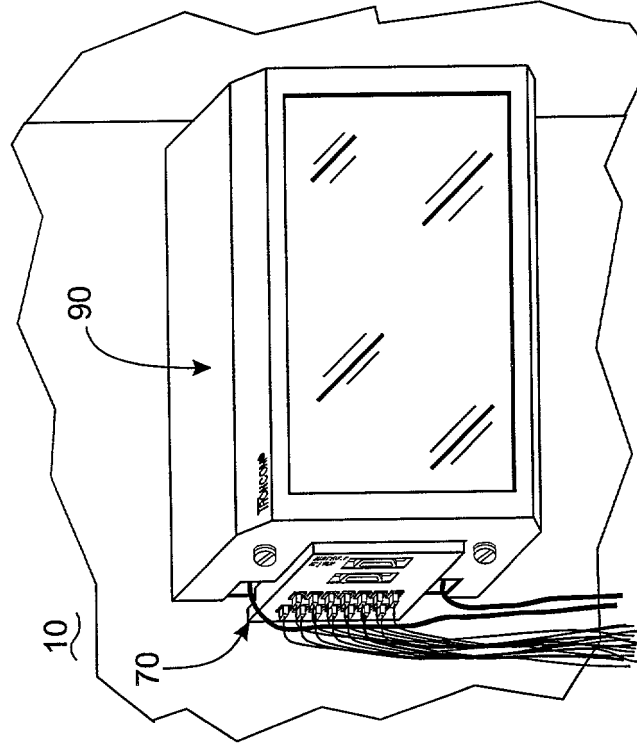


Fig. 1A

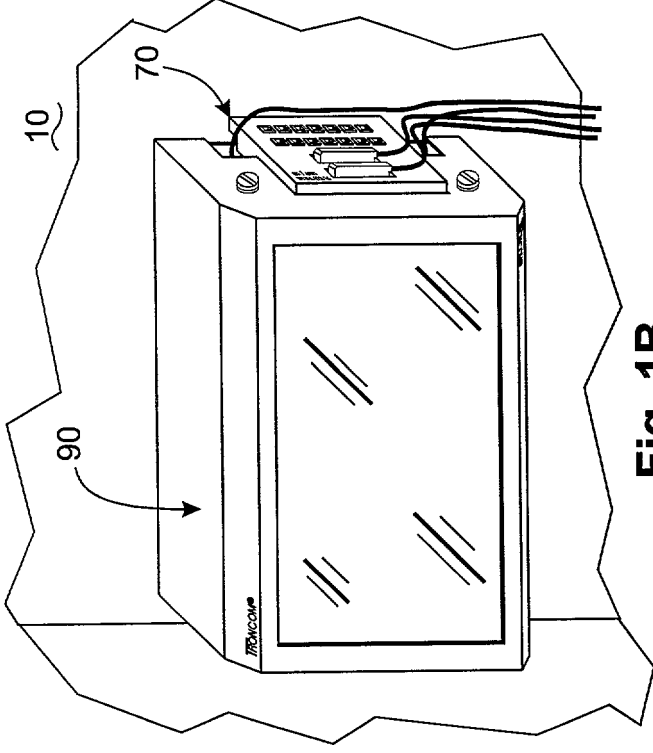


Fig. 1B

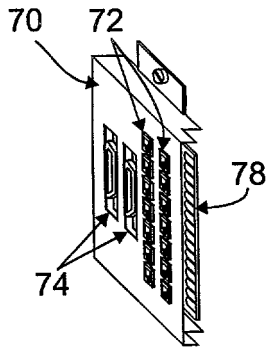


Fig. 2C

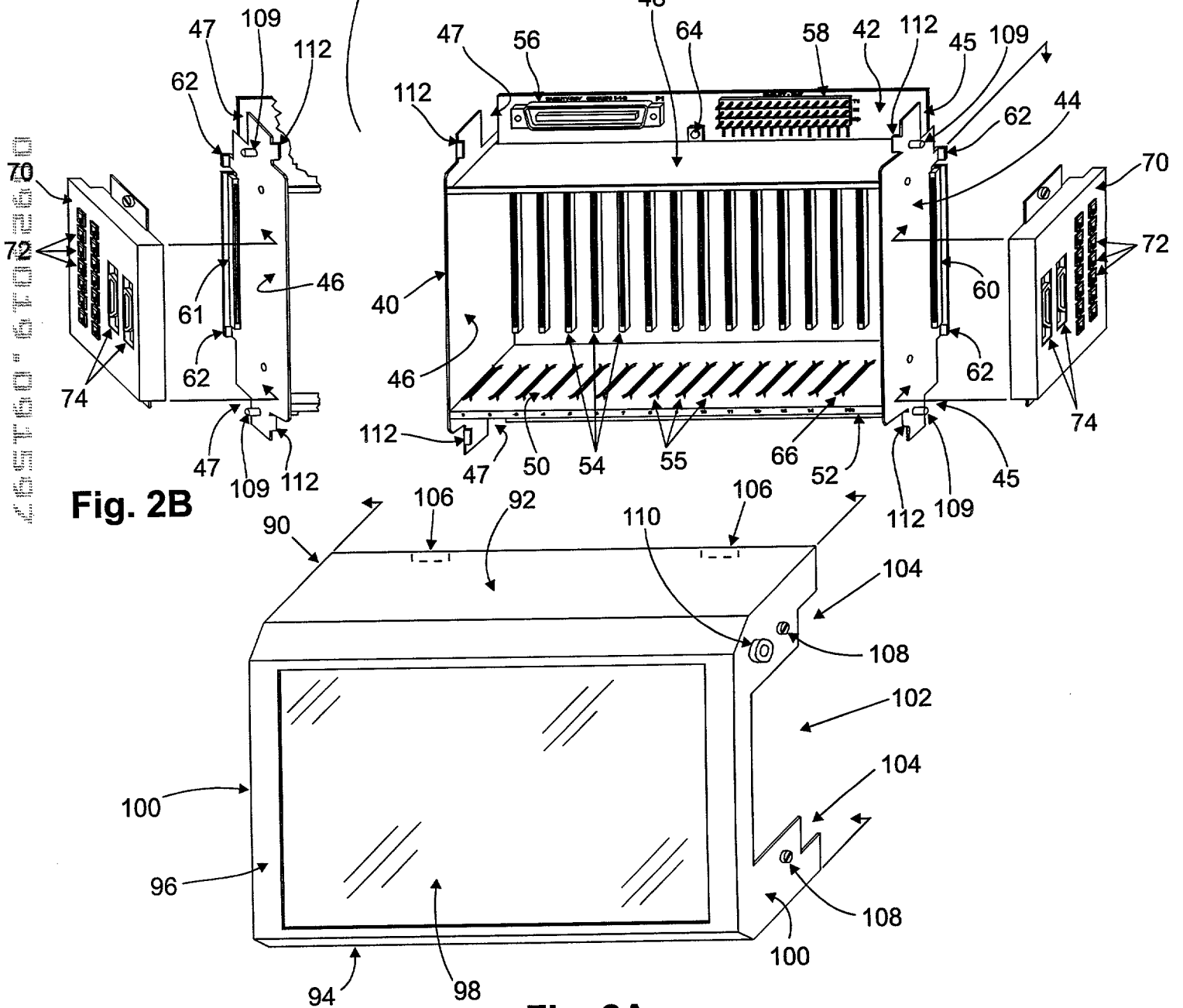
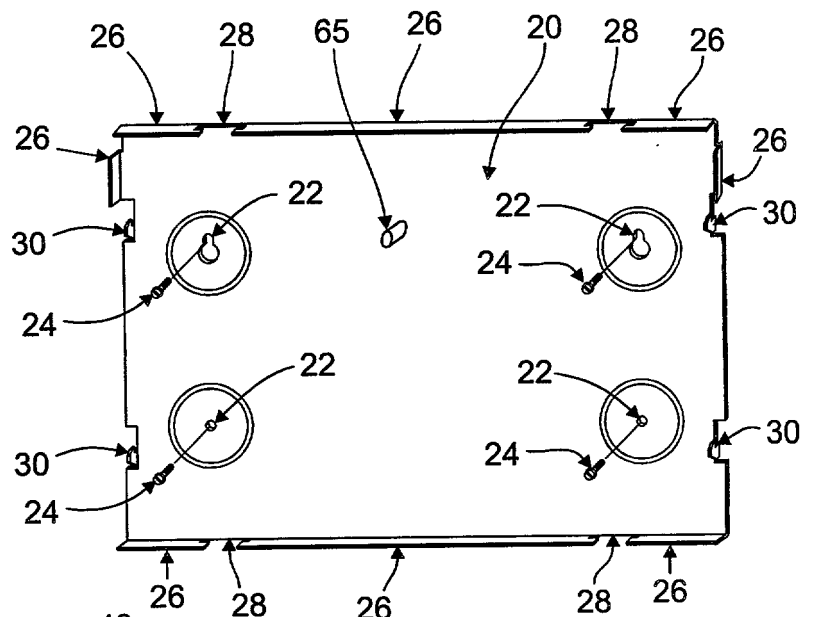


Fig. 2B

Fig. 2A

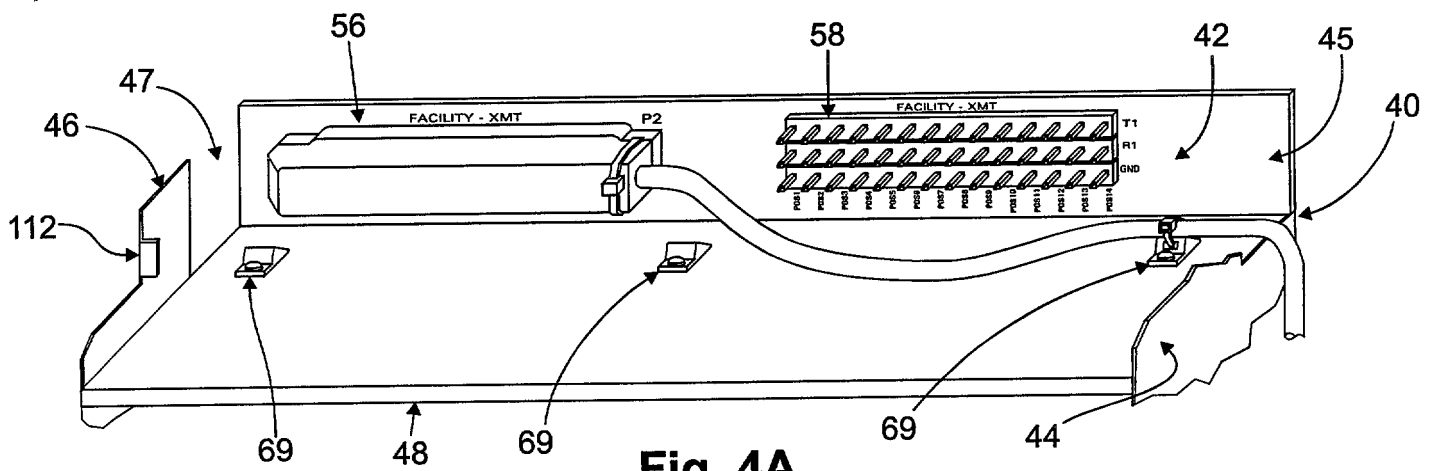


Fig. 4A

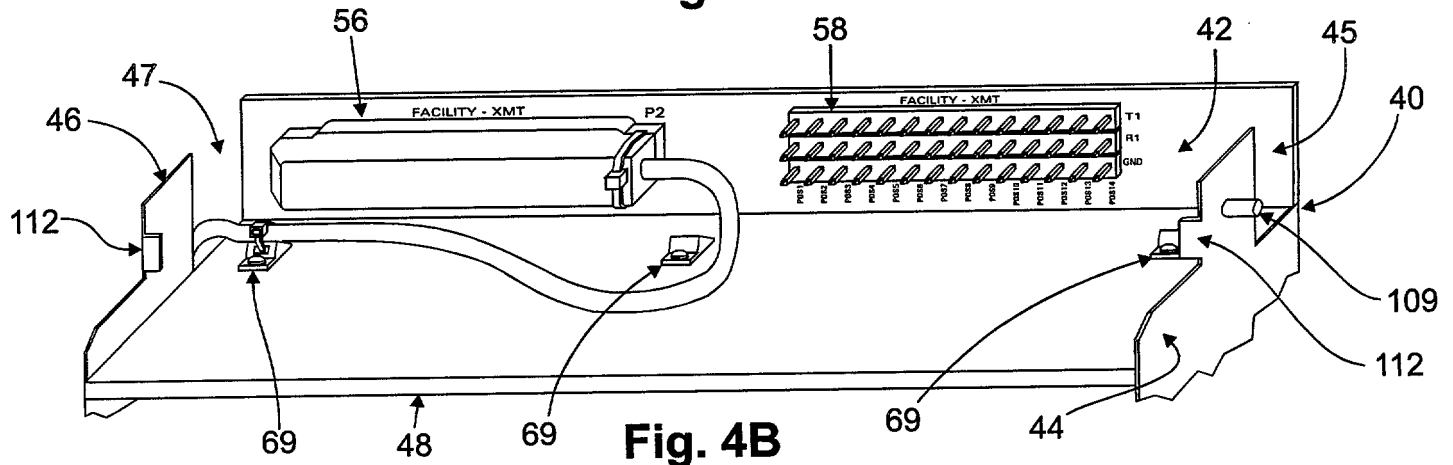


Fig. 4B

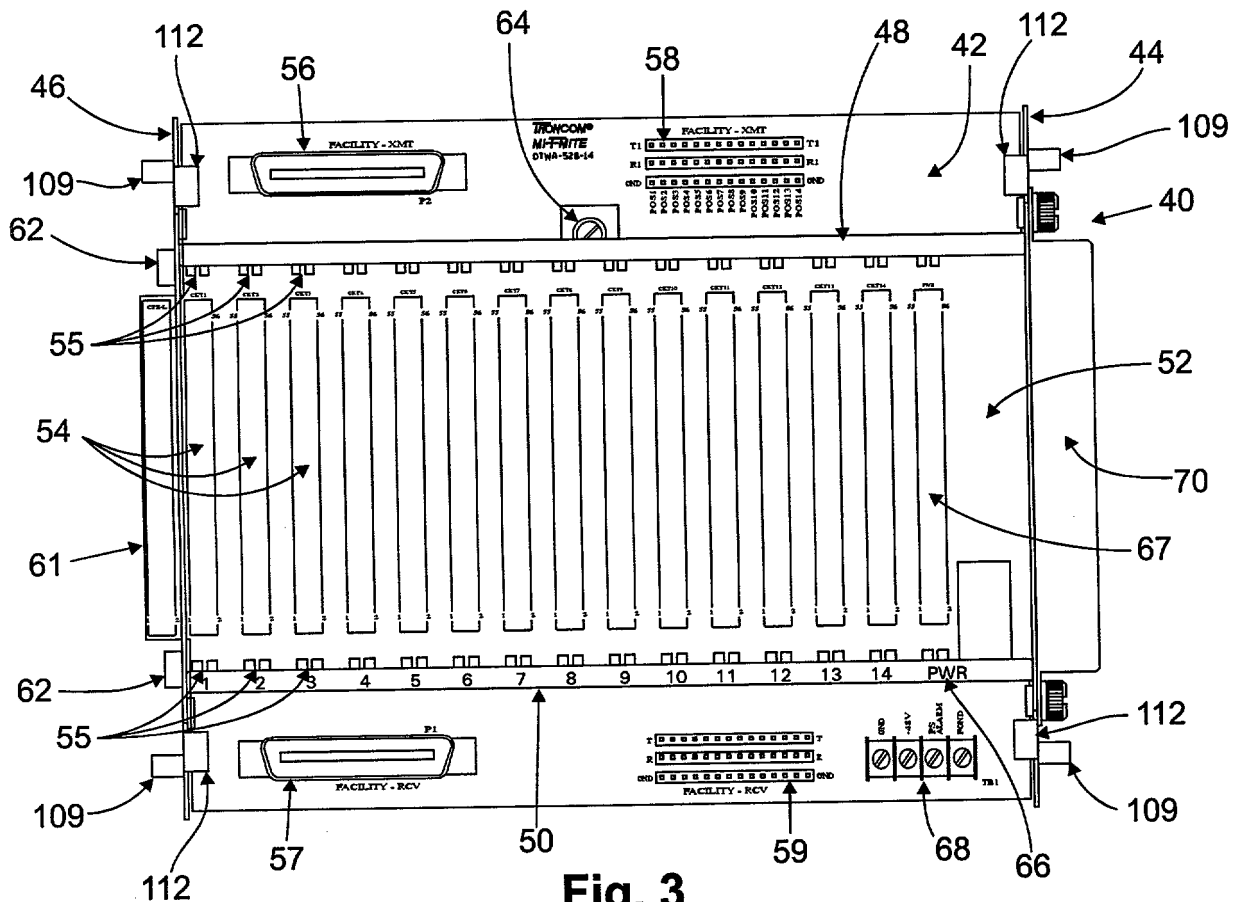


Fig. 3

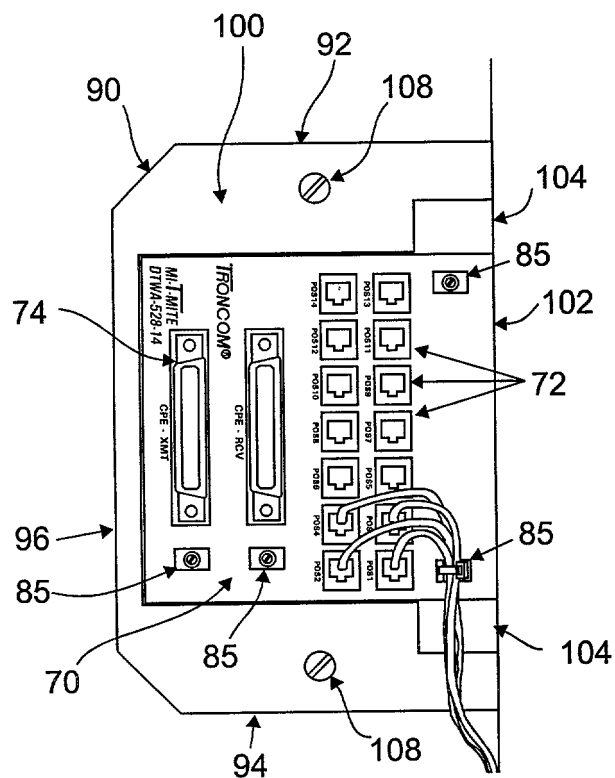


Fig. 5A

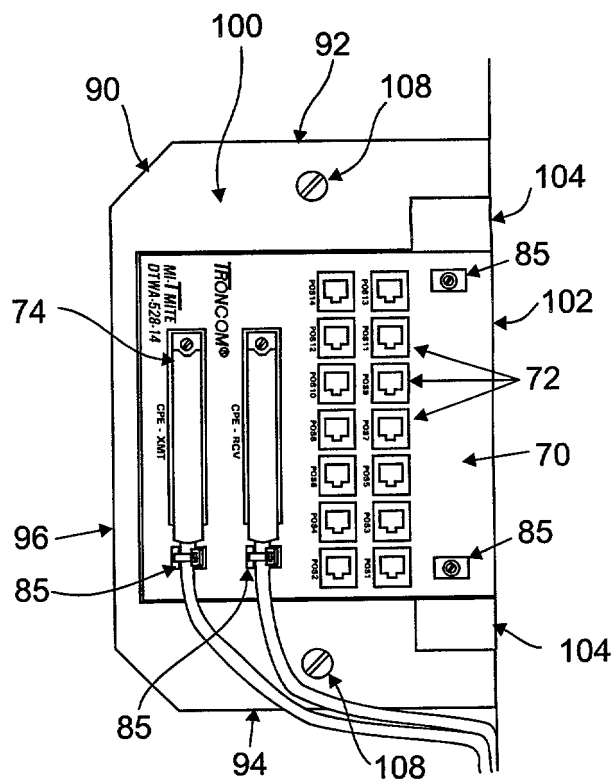


Fig. 5B

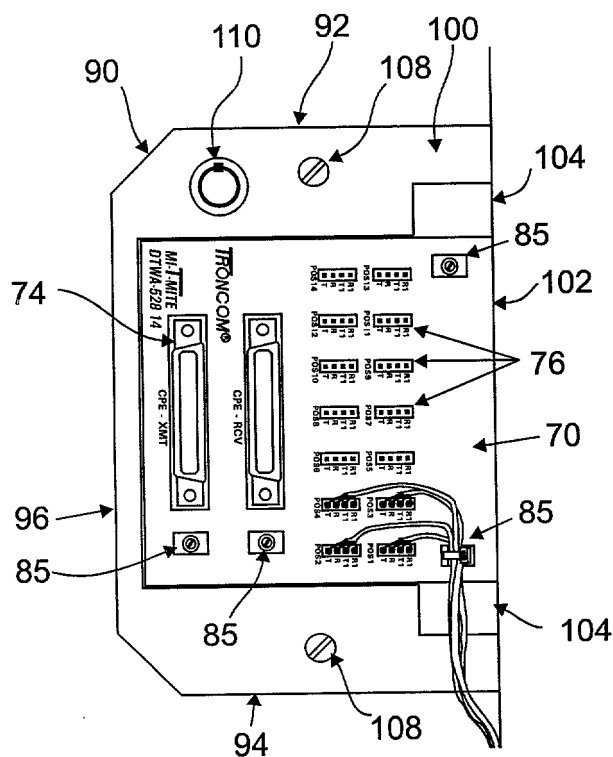


Fig. 5C

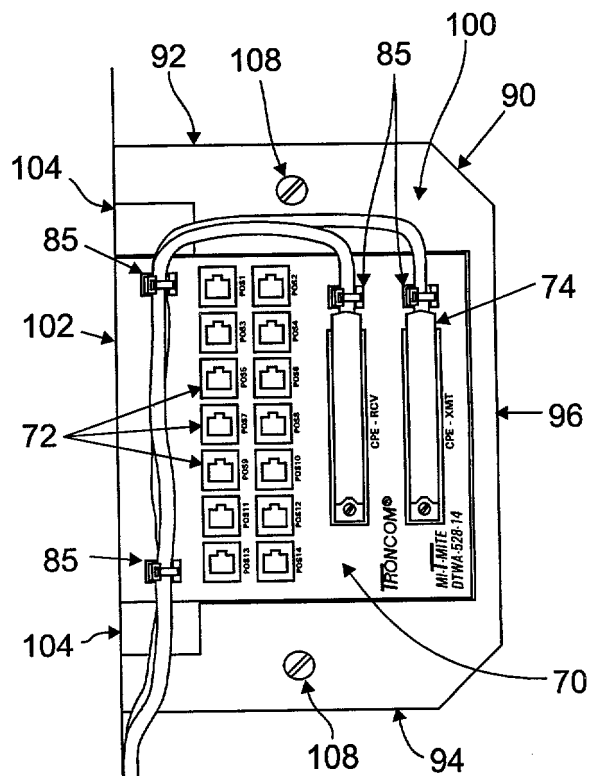


Fig. 5D

Applicant or Patentee: Paul T. DeCraene

Atty Docket No. 5291/54391

Serial or Patent No.: _____

Filed or Issued: _____

For: **NETWORK INTERFACE UNIT SHELF ASSEMBLY WITH MULTI-POSITIONABLE
CUSTOMER INTERFACE MODULE****VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY STATUS**

(37 CFR 1.9(f) AND 1.27(c) - SMALL BUSINESS CONCERN)

I hereby declare that I am

- () the owner of the small business concern identified below:
 (X) an official of the small business concern empowered to act on behalf of the concern identified below:

NAME OF CONCERN: Troncom Corporation
 ADDRESS OF CONCERN: 940 Kingsland Drive, Batavia, Illinois 60510

I hereby declare that the above identified small business concern qualifies as a small business concern as defined in 13 CFR 121.3-18, and reproduced in 37 CFR 1.9(d), for purposes of paying reduced fees under section 41(a) and (b) of Title 35, United States Code, in that the number of employees of the concern, including those of its affiliates, does not exceed 500 persons. For purposes of this statement, (1) the number of employees of the business concern is the average over the previous fiscal year of the concern of the persons employed on a full-time, part-time, or temporary basis during each of the pay periods of the fiscal years, and (2) concerns are affiliates of each other when either, directly or indirectly, one concern controls or has the power to control the other, or a third party or parties controls or has the power to control both.

I hereby declare that rights under contract or law have been conveyed to and remain with the small business concern identified above with regard to the invention, entitled:

**NETWORK INTERFACE UNIT SHELF ASSEMBLY
 WITH MULTI-POSITIONABLE CUSTOMER INTERFACE MODULE**

by inventor(s): Paul T. DeCraene
 described in:

- (X) the specification filed herewith.
 () application serial no. _____, filed _____.
 () patent no. _____, issued _____.

If the rights held by the above-identified small business concern are not exclusive, each individual, concern, or organization having rights to the invention is listed below* and no rights to the invention are held by any person, other than that inventor, who could not qualify as a small business concern under 37 CFR 1.9(d), or by any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e). *NOTE: Separate verified statements are required from each named person, concern, or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27)

NAME _____

ADDRESS _____

() INDIVIDUAL () SMALL BUSINESS CONCERN () NONPROFIT ORGANIZATION

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

I hereby declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

NAME OF PERSON SIGNING:

Darrell Hill

TITLE OF PERSON OTHER THAN OWNER:

VICE PRESIDENT SALES

ADDRESS OF PERSON SIGNING:

940 Kingsland Drive, Batavia, Illinois 60510

SIGNATURE:

Darrell R. HillDATE: Sept. 12, 1997

(10T66)

45760 "6T62600

PATENT

Attorney Docket No. 5291/54391

DECLARATION, POWER OF ATTORNEY AND CORRESPONDENCE ADDRESS

I, the below named inventor, hereby declare that:

My residence, post office address and citizenship are as stated below next to my respective name;

I believe I am the original, first and sole inventor of the subject matter which is claimed and for which a patent is sought on the invention entitled "**NETWORK INTERFACE UNIT SHELF ASSEMBLY WITH MULTI-POSITIONABLE CUSTOMER INTERFACE MODULE**", the specification of which is attached hereto.

I hereby state that I do not know and do not believe that this invention was ever known or used in the United States of America before my invention thereof or patented or described in any printed publication in any country before my invention thereof or more than one year prior to this application, or in public use or on sale in the United States of America for more than one year prior to this application; that this invention has not been patented or made the subject of an inventor's certificate issued before the date of this application in any country foreign to the United States of America on an application filed by me by my legal representatives or assigns more than six months prior to this application; that we acknowledge a duty to disclose information that we are aware of which is material to the examination of this application; that no application for patent or inventor's certificate on this invention has been filed by me or my legal representatives or assigns in any country foreign to the United States of America; and that no foreign filing has been made which is contrary to 35 U.S.C. Section 184.

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims as amended by any amendment thereto.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with title 37, Code of Federal Regulations, Section 1.56(a).

I hereby claim the benefit under Title 35, United States Code, Section 120 of any United States applications listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, Section 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, Section 1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing of this application:

None	None	None
.....
Application Serial No.	Filing Date	Status

45391/54391

I hereby declare that all statements made hereby of my own knowledge are true and that all statements made on information and belief are believed to be true; that any willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

And I hereby appoint: Timothy T. Patula, Reg. No. 30,791; Charles T. Riggs, Jr., Reg. No. 37,430; and Matthew E. Leno, Reg. No. 41,149, of Patula and Associates, as my attorney, respectively with full power of substitution and revocation, to prosecute this application, to make alterations and amendments therein, to receive the patent and to transact all business in the Patent and Trademark Office connected therewith.

I request that all correspondence be directed to:

Timothy T. Patula, Esq.
PATULA & ASSOCIATES
116 South Michigan Avenue
14th Floor
Chicago, IL 60603
(312) 201-8220

Paul T. DeCraene
Inventor


Signature

9/12/97
Date

29W221 Ray Avenue
Residence & Post Off. Address

U.S.A.
Citizenship

West Chicago, Illinois 60185
City, State and Zip

(10T66)

253T60-6T052680